does not describe an accurate relationship between the machine room and the elevator passage of the Applicants' invention. Applicants have amended claim 1 to recite, "said machine room is adjacent an elevator passage for said cage." Applicants submit that the word "adjacent" accurately describes the relationship between the machine room and elevator passage of the present invention.

The Examiner further argues that claims 2-6 are confusing because they recite a motor assembly that does not include a motor. Applicants have amended claims 2-4 to recite "a drive assembly" in place of the phrase, "a motor assembly." Applicants submit that a drive assembly accurately describes the structure previously referred to as a motor assembly.

Further, the Examiner rejected claim 5 because claim 5 states that the output shaft of the speed-reducer constitutes the sheave, which is inaccurate in the Examiner's opinion. Applicants have amended claim 5 to recite, "an output wheel of said speed-reducer constitutes said sheave." Applicants submit that the sheave is an output wheel of the speed-reducer. Support for the above amendment can be found on lines 21 and 22 of page 11 of the specification.

Based upon the above-discussed arguments, Applicants submit that amended claim 1-5 are in full compliance with 35 U.S.C. § 112, second paragraph. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw any rejection of amended claims 1-6 based upon 35 U.S.C. § 112.

Claim Rejections - 35 U.S.C. § 102

The Examiner rejected claim 1 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,202,793 (Fargo). Applicants respectfully traverse this rejection.

Fargo is directed to an elevator machine with counter-rotating rotors. Referring to Fig. 1, the elevator machine of Fargo is comprised of an elevator car 22, an elevator machine 14, a counterweight 24, a drive sheave 16 and first and second diverter pulleys 18 and 20. A drive belt 30 traverses between the elevator car 22, first diverter pulley 18, drive sheave 16, second diverter pulley 20, counterweight 24 and a first end 32 of the drive belt 30 to suspend the elevator car 22 in a hoistway 12. The drive sheave 16 and first and second diverter pulleys 18

and 20 are generally positioned above the elevator car 22. Each end of the drive belt 30 is fixed relative to the elevator car 22 and hoistway 12. The drive sheave 16 actuates the belt 30 by rotating clockwise or counter clockwise, thereby causing the drive rope 30 to move the elevator car 22 and counterweight 24 up and down within the hoistway 12. The drive sheave 16 of Fig. 1 and the first and second pulleys 18 and 20 are shown positioned above the elevator car 22 when the elevator car 22 is positioned at a top floor of a building. The drive sheave 16 of Fig. 1 further shows a rotation surface of the drive sheave 16 facing an open space within a machine room of the building, when the elevator car 22 is at a top floor of the building.

Referring to Fig. 5, the elevator machine of Fargo may be configured such that a drive machine 302 including first and second counter-rotating drive sheaves 304 and 306 are positioned below an elevator car (not shown). The first and second drive sheaves 304 and 306 in the configuration of Fig. 5, urge the elevator car up and down in a hoistway of a building. In the configuration of Fig. 5, a rotation surface of the first and second drive sheaves 304 and 306 is adjacent a side of the hoistway when the cage is positioned at a top floor of the building.

Referring to Fig. 6, the elevator machine of Fargo may also be configured with counter-rotating drive sheaves 416 and 418 positioned below an elevator car 434. The configuration of Fig. 6 shows rotation surfaces of the counter-rotating drive sheaves 416 and 418 adjacent a side of the hoistway when the elevator car 434 is positioned at a top floor of the building.

Fig. 9 shows a third configuration of the elevator machine of Fargo where counter-rotating drive sheaves 706 and 708 are positioned adjacent a counterweight assembly 702 to drive the elevator car 718 in a hoistway. The counter-rotating drive sheaves 706 and 708 and a rotation surface of the drive sheaves 706 and 708 of the elevator machine of Fig. 9 are adjacent sides of a hoistway when the elevator car 718 is positioned at a top floor of the building.

Referring to Figs. 10-12, a fourth embodiment of the elevator machine of Fargo shows counter-rotating drive sheaves 806, 808, 810, 812 and 832 positioned below an elevator car 802, 804 and 830 to drive the up and down movement of the elevator car 802, 804 and 830. Accordingly, when the elevator car 802, 804 and 830 is positioned at a top floor of the building a

rotation surface of the counter-rotating drive sheaves 806, 808, 810, 812 and 830 are adjacent a side of the hoistway.

Figs. 13 and 14 show drive sheaves 914 and 916 positioned below a counterweight 910 to actuate an elevator car 902 up and down in a hoistway. A rotation surface of the drive sheaves 914 and 916 is positioned adjacent a side of a hoistway when the elevator car 902 is positioned at a top floor of the building.

The present invention is directed to an elevator apparatus including a drive sheave that is adjacent a side of an elevator cage when the elevator cage is positioned at a top floor of a building. Referring to Figs. 2a and 2b, the elevator apparatus is comprised of an actuating device 1, a control panel 2, a drive rope 29, a cage 52 and a balance weight 56. The actuating device 1 and control panel 2 are positioned within a machine room 58 on a top floor 57 of a building 50 adjacent an elevator passage 59. The actuating device 1 includes a drive sheave 27 with a rotation surface that faces from the machine room 58 toward the elevator passage 59. A first end of the rope 29 is secured to a fitting portion 51, extends around a pulley 55 attached to the balance weight 56, around the drive sheave 27, around a pair of pulleys 52a and 52b adjacent a lower face of the cage 52 and is again secured at a second end to the fitting portion 51. Rotation of the drive sheave 27 urges the counterweight 56 and elevator cage 52 up and down within an elevator passage 59. The machine room 58 is positioned on the top floor 57 of the building 50 adjacent the elevator passage 59 to permit access to the actuating device 1 and control panel 2 for maintenance work. The configuration of the machine room 58 eliminates the need for a separate machine room extending from a rooftop 50a of the building 50. The actuating device 1 and control panel 2 are positioned within the machine room 58 such that when the elevator cage 52 is positioned at a top floor 57 of the building 50 a rotation surface of the sheave 27 is adjacent a side of the elevator cage 52 (see Fig. 26).

Claim 1 recites, *inter alia*, an actuating device including a sheave around which a rope engaged with an ascending and descending cage is wound... wherein said actuating device is installed in a machine room provided on a top floor of a building in which said ascending and descending cage is disposed, said machine room is adjacent an elevator passage for said cage and a

rotation surface of said sheave is adjacent a side of said cage when said cage is positioned at said top floor.

Applicants submit that Fargo does not anticipate claim 1 under 35 U.S.C. § 102(e). There is no teaching, suggestion or disclosure in Fargo of a rotation surface of a sheave adjacent a side of a cage when the cage is positioned at a top floor of a building. Fargo teaches a plurality of different positions for a rotation surface of a drive sheave including in a space above an elevator car facing into a machine room (see Figs. 1 and 3), below an elevator car facing a side of an elevator hoistway (see Figs. 5, 6 and 10-14) and above a counterweight facing sides of a counterweight shaft (see Fig. 9). Accordingly, the rotation surface of the sheaves of Fargo is adjacent either an open space in a machine room, sides of a hoistway or sides of a counterweight hoistway when the elevator car is positioned at a top floor of a building. Accordingly, Fargo does not teach, suggest or disclose each and every element of claim 1 of the present invention.

Since Fargo does not teach, suggest or disclose each and every element of claim 1, Applicants respectfully submit that claim 1 is not anticipated by Fargo. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw any rejection of claim 1 based upon anticipation by Fargo.

The Examiner rejected claims 1, 2, 5 and 6 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,766,977 (Yamasaki). Applicants respectfully traverse this rejection.

Yamasaki is directed to a load detecting apparatus for an elevator. Referring to Figs. 1 and 2, Yamasaki discloses an elevator system comprised of a hoistway 1, a machine room 2, a base member 5, a traction sheave 7, a hoisting rope 14, an elevator cage 15, and a counterweight 16. The base member 5 and traction sheave 7 are positioned above the hoistway 1 in the machine room 2. Rotation of the traction sheave 7 urges the hoisting rope 14 to move the counterweight 16 and elevator cage 15 up and down within the hoistway 1. A rotation surface of the traction sheave 7 is adjacent an open space or walls within the machine room 2 regardless of where the elevator cage 15 or counterweight 16 are positioned within the hoistway 1.

Claim 1 of the present application recites, *inter alia*, an actuating device including a sheave around which a rope engaged with an ascending and descending cage is wound... wherein said actuating device is installed in a machine room provided on a top floor of a building in which said ascending and descending cage is disposed, said machine room is adjacent an elevator passage for said cage and a rotation surface of said sheave is adjacent a side of said cage when said cage is positioned at said top floor.

Applicants submit that Yamasaki does not anticipate claim 1 under 35 U.S.C. § 102(b). There is no teaching, suggestion or disclosure in Yamasaki of a rotation surface of a drive sheave adjacent a side of an elevator cage when the cage is positioned at a top floor of a building. In Yamasaki, the rotation surface of the drive sheave is adjacent an open space of a machine room or walls of a machine room regardless of where the elevator cage or counterweight are positioned. Since Yamasaki does not teach, suggest or disclose each and every element of claim 1, Applicants respectfully submit that Yamasaki does not anticipate claim 1 under 35 U.S.C. § 102(b). Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claim 1 based upon anticipation by Yamasaki.

Claims 2, 5 and 6 are dependent upon claim 1. Therefore, Applicants respectfully submit that Yamasaki does not anticipate claims 2, 5 and 6 under 35 U.S.C. § 102(b) for the same reasons discussed above. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claims 2, 5 and 6 based upon anticipation by Yamasaki.

Claim Rejections - 35 U.S.C. § 103

The Examiner rejected claims 1-6 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,230,844 (Latorre) in view of Fargo. The Examiner contends that Latorre discloses each of the elements of claims 1-6 except for mounting an actuating device in a room that faces an elevator hoistway. The Examiner further argues that it would have been obvious to one having ordinary skill in the art to combine the Fargo reference with Latorre to mount the motor assembly of Latorre in a room that faces the elevator hoistway for easy access to the motor assembly for maintenance, as taught by Fargo. Applicants respectfully traverse this rejection.

Latorre is directed to a rope traction elevator that is installed in an elevator hoistway. Referring to Fig. 1, the traction elevator of Latorre is comprised of a motor 1, a horizontal transverse beam 13, a traction sheave 6 and a suspension element 18. The motor 1 of Latorre is mounted within an elevator hoistway on the horizontal transverse beam 13 above an elevator or item to be hoisted (not shown). The traction sheave 6 is positioned above the horizontal transverse beam 13 along with the motor 1. The motor 1 drives the traction sheave 6 in a rotation to actuate the suspension element 18, counterweight and elevator car up and down within the hoistway. The elevator car and counterweight may extend in an upward direction only to a position below the transverse beam 13 before contacting a lower surface of the transverse beam 13.

Claim 1 of the present invention recites, *inter alia*, an actuating device including a sheave around which a rope engaged with an ascending and descending cage is wound... wherein said actuating device is installed in a machine room provided on a top floor of a building in which said ascending and descending cage is disposed, said machine room is adjacent an elevator passage for said cage and a rotation surface of said sheave is adjacent a side of said cage when said cage is positioned at said top floor.

Applicants respectfully submit that the present invention is patentable over Latorre in view of Fargo. Neither Latorre nor Fargo teach a rotation surface of a sheave that is adjacent a side of an elevator cage when the elevator cage is positioned at a top floor of a building. Nor would such arrangement be obvious to one having ordinary skill in the art at the time the invention was made. Specifically, the rope traction elevator of Latorre teaches an elevator that does not function if a rotation surface of the sheave is adjacent a side of an elevator cage when the elevator cage is positioned at a top floor of a building. The drive sheave and motor of Latorre are positioned upon a horizontal transverse beam that spans a space within an elevator hoistway. Accordingly, the drive sheave and a rotation surface of the drive sheave of Latorre is constantly positioned above an elevator car and counterweight. Therefore, the rotation surface of the drive sheave of Latorre is constantly positioned above the elevator and counterweight of Latorre. Further, placing the traction elevator of Latorre into a machine room as taught by Fargo and suggested by the Examiner does not alter the positioning of a rotation surface of the drive sheave of Latorre. That is, a rotation surface of the drive sheave of Latorre is

constantly positioned above an elevator car regardless of whether the traction elevator is in a machine room or in the hoistway. The difference being that the present invention teaches a rotation surface of a drive sheave that is adjacent a side of an elevator cage when the elevator cage is positioned at a top floor of a building, while the device of Latorre in combination with Fargo discloses a rotation surface of a drive sheave positioned above an elevator cage on a horizontal transverse beam or within a machine room. In view of the foregoing, Applicants respectfully request that the Examiner reconsider and withdraw any rejection of claim 1 based upon unpatentability over Latorre in view of Fargo.

Claims 2-6 are dependent upon claim 1 and are, therefore, also considered patentable over Latorre in view of Fargo for the above-discussed reasons. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw any rejection of claims 2-6 based upon unpatentability over Latorre in view of Fargo.

CONCLUSION

In view of the foregoing Amendment and Remarks, Applicants respectfully submit that the present application, including claims 1-6 is in condition for allowance and such action is respectfully requested.

Respectfully submitted,

HIROYUKI MIYOSHI *et al.*

11/13/01
(Date)

By: [signature] 28,959
pp **MARTIN G. BELISARIO**
Registration No. 32,886

AKIN, GUMP, STRAUSS, HAUER & FELD, L.L.P.
One Commerce Square
2005 Market Street - 22nd Floor
Philadelphia, PA 19103-7086
Telephone: (215) 965-1200
Direct Dial: (215) 965-1303
Facsimile: (215) 965-1210
E-Mail: mbelisario@akingump.com

MGB/DJB:ccr

Marked-Up Version of the Claims

The following is a Marked-Up Version of the Claims where underlining indicates additions and bracketing indicates deletions.

1. (Amended) An elevator apparatus comprising:

an actuating device including a sheave around which a rope engaged with an ascending and descending cage is wound, said sheave being adapted to rotate thereby to move said rope with its rotation, and a driving section for rotating said sheave,

wherein said actuating device is installed in a machine room provided on a top floor of a building in which said ascending and descending cage is disposed, [and]said machine room [faces with]is adjacent an elevator passage for said cage and a rotation surface of said sheave is adjacent a side of said cage when said cage is positioned at said top floor.

2. (Amended) The elevator apparatus according to claim 1, wherein said actuating device includes a support member, a speed-reducer mounted on a first side of said support member, a [motor]drive assembly mounted on a second side of said support member, and a brake assembly supported on said second side of said support member, said second side being opposite from said first side.

3. (Amended) The elevator apparatus according to claim 2, wherein said speed-reducer, said [motor]drive assembly and said brake assembly are arranged coaxially to one another.

4. (Amended) The elevator apparatus according to claim 2, wherein said brake assembly is arranged radially inwardly of said [motor]drive assembly.

5. (Amended) The elevator apparatus according to claim 2, wherein an output [shaft]wheel of said speed-reducer constitutes said sheave.